Pushing the Envelope			
1997 Mathematics			
Learning Standards			
Illinois Mathematics			
Grades 4-5			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	IL	MA.4-5.7.A.2a	Measure and compare quantities using appropriate units, instruments and methods. Calculate, compare and convert length, perimeter, area, weight/mass and volume within the customary and metric systems.
Chemistry (pgs. 25-41)	IL	MA.4-5.7.A.2a	Measure and compare quantities using appropriate units, instruments and methods. Calculate, compare and convert length, perimeter, area, weight/mass and volume within the customary and metric systems.
Physics and Math (pgs. 43-63)	IL	MA.4-5.6.D.2	Describe the relationship between two sets of data using ratios and appropriate notations (e.g., a/b, a to b, a:b).
Physics and Math (pgs. 43-63)	IL	MA.4-5.8.A.2b	Describe numerical relationships using variables and patterns. Construct and solve number sentences using a variable to represent an unknown quantity.
Pushing the Envelope			
1997 Mathematics			
Learning Standards			
Illinois Mathematics			
Grades 6-8			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	IL	MA.6-8.7.A.3b	Measure and compare quantities using appropriate units, instruments and methods. Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.
Types of Engines (pgs. 11-23)	IL	MA.6-8.7.A.3a	Measure and compare quantities using appropriate units, instruments and methods. Measure length, capacity, weight/mass and angles using sophisticated instruments (e.g., compass, protractor, trundle wheel).
Types of Engines (pgs. 11-23)	IL	MA.6-8.7.A.3b	Measure and compare quantities using appropriate units, instruments and methods. Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.
Types of Engines (pgs. 11-23)	IL	MA.6-8.8.D.3b	Use algebraic concepts and procedures to represent and solve problems. Propose and solve problems using proportions, formulas and linear functions.

Chemistry (pgs. 25-41)	IL	MA.6-8.7.A.3b	Measure and compare quantities using appropriate units, instruments and methods. Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.
Chemistry (pgs. 25-41)	IL	MA.6-8.7.C.3b	Select and use appropriate technology, instruments and formulas to solve problems, interpret results and communicate findings. Use concrete and graphic models and appropriate formulas to find perimeters, areas, surface areas and volumes of two- and three-dimensional regions.
Chemistry (pgs. 25-41)	IL	MA.6-8.8.D.3b	Use algebraic concepts and procedures to represent and solve problems. Propose and solve problems using proportions, formulas and linear functions.
Physics and Math (pgs. 43-63)	IL	MA.6-8.6.D.3	Solve problems using comparison of quantities, ratios, proportions and percents. Apply ratios and proportions to solve practical problems.
Physics and Math (pgs. 43-63)	IL	MA.6-8.8.D.3a	Use algebraic concepts and procedures to represent and solve problems. Solve problems using numeric, graphic or symbolic representations of variables, expressions, equations and inequalities.
Physics and Math (pgs. 43-63)	IL	MA.6-8.8.D.3b	Use algebraic concepts and procedures to represent and solve problems. Propose and solve problems using proportions, formulas and linear functions.
Rocket Activity (pgs. 69-75)	IL	MA.6-8.8.D.3b	Use algebraic concepts and procedures to represent and solve problems. Propose and solve problems using proportions, formulas and linear functions.
Pushing the Envelope			
1997 Mathematics			
Learning Standards			
Illinois Mathematics			
Grades 9-10			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	IL	MA.9-10.7.A.4b	Measure and compare quantities using appropriate units, instruments and methods. Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.

Types of Engines (pgs. 11-23)	IL	MA.9-10.7.A.4b	Measure and compare quantities using appropriate units, instruments and methods. Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.
Types of Engines (pgs. 11-23)	IL	MA.9-10.7.B.4	Estimate measurements and determine acceptable levels of accuracy. Estimate and measure the magnitude and directions of physical quantities (e.g., velocity, force, slope) using rulers, protractors and other scientific instruments including timers, calculators and computers.
Chemistry (pgs. 25-41)	IL	MA.9-10.7.A.4b	Measure and compare quantities using appropriate units, instruments and methods. Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.
Physics and Math (pgs. 43-63)	IL	MA.9-10.6.D.4	Solve problems using comparison of quantities, ratios, proportions and percents. Solve problems involving recipes or mixtures, financial calculations and geometric similarity using ratios, proportions and percents.
Physics and Math (pgs. 43-63)	IL	MA.9-10.7.A.4b	Measure and compare quantities using appropriate units, instruments and methods. Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.
Physics and Math (pgs. 43-63)	IL	MA.9-10.8.A.4b	Describe numerical relationships using variables and patterns. Represent mathematical patterns and describe their properties using variables and mathematical symbols.
Rocket Activity (pgs. 69-75)	IL	MA.9-10.7.A.4b	Measure and compare quantities using appropriate units, instruments and methods. Apply formulas in a wide variety of theoretical and practical real-world measurement applications involving perimeter, area, volume, angle, time, temperature, mass, speed, distance, density and monetary values.